

REMARKS

In the last Office Action, the Examiner rejected claims 1, 5, 6, 11-13 and 16-24 under 35 U.S.C. §112, second paragraph, for indefiniteness. Claims 1, 5, 11, 13, 16-18 and 21-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,032,370 to Nagashima et al. ("Nagashima '370") in view of U.S. Patent No. 5,431,256 to Wen and U.S. Patent No. 6,125,547 to Nagashima ("Nagashima '547"). Claims 1, 5, 6, 11-13 and 16-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagashima '370 in view of Nagashima '547 and Wen and further in view of Japanese Patent No. 401116340 to Tabata.

In accordance with the present response, independent claims 1, 13 and 23 have been amended to incorporate the subject matter of claims 6, 21 and 19, 22 and 24, respectively, which have been canceled, and to further patentably distinguish from the prior art of record. Claims 1, 13 and 23 have also been amended to overcome the rejection under 35 U.S.C. §112, second paragraph. Claim 12 has been amended to depend on claim 1 in light of the cancellation of claim 6 and to correct an informality. Page 19 of the specification has been amended to provide antecedent basis for the "pulling direction" recited in independent claims 1, 13 and 23. A new abstract which more clearly reflects the

invention to which the amended claims are directed has been substituted for the previously submitted abstract.

Applicants respectfully request reconsideration of their application in light of the following discussion.

Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1, 5, 6, 11-13 and 16-24 were rejected under 35 U.S.C. §112, second paragraph, for indefiniteness. The Examiner contends that the "pulling direction" recited in claims 1, 13 and 23 is unclear as to the actual direction in which the wires are pulled. Applicants respectfully traverse this rejection.

Independent claims 1, 13 and 23 have been amended to clarify that the "second end" of each of the main, throttle and brake wires (claim 1) or each of the first, second and third wires (claims 13, 23) is pulled in the "pulling direction" upon pivotal movement of the throttle lever. The "second end" of each of the wires corresponds to the "distal end" of the corresponding wires described on page 12, paragraphs [0058] - [0060]. Thus the "pulling direction" in amended claims 1, 13 and 23 refers to the direction in which the distal ends of the wires are pulled as described in the specification. Page 19, paragraph [0087] of the specification has been suitably revised to provide literal basis for

"pulling direction" recited in amended claims 1, 13 and 23 and to further clarify how the distal ends of the wires are pulled in the same pulling direction.

In view of the foregoing, applicants respectfully submit that the rejection of claims 1, 5, 6, 11-13 and 16-24 under 35 U.S.C. §112, second paragraph, has been overcome and should be withdrawn.

Brief Summary of the Invention

The present invention is directed to a bush cutting machine.

Conventional bush cutting machines include a throttle adjustment unit mounted on a prime mover for adjusting the rotational speed of a cutter blade, and a brake unit provided in a drive power transmission path between the cutter blade and the prime mover for applying a braking force to the cutter blade. In one conventional bush cutting machine, the cutter blade is connected to the prime mover via a clutch and a driven shaft, and a handle supports a brake lever connected via a wire to a brake shoe of the brake unit. When the brake lever is released from a gripped state, the brake shoe is urged against an outer circumferential periphery of the driven shaft to apply the brakes to the cutter blade.

However, in the foregoing conventional bush cutting machine, an operator is required to perform respective operations of the throttle lever and the brake lever in a timed fashion during a bush cutting operation. For example, the operator must operate the throttle lever in such a manner so as to gradually increase the rotational speed of the cutter blade while gripping the brake lever to gradually release the brakes from the cutter blade, thereby requiring high-skill operation of the levers. Furthermore, since the operator must not only perform a lever operation with his hand but must also maintain a specific orientation of the bush cutting machine during a cutting operation, the levers must be desirably operated in the simplest way possible in order to improve workability and minimize fatigue to the operator.

In another conventional bush cutting machine, a cutter blade is connected to the prime mover via a rotary shaft, a handle rod is mounted to an operation rod through which the rotary shaft passes, a brake lever and a throttle lever are both mounted to the handle rod, a brake lever is connected via a wire to a brake section for braking the cutter blade, a throttle lever is connected to a throttle valve mechanism via a wire, and a control box is provided midway of the wires for linking the wires to one another. The control box includes a control body rotatably secured to a pivot

shaft. The wires are connected to respective ends of the control body. In this bush cutting machine, the brake section and the throttle valve mechanism are interlinked through operation of the brake lever. However, the presence of the control box provided midway of the wires complicates the assembly of the control box and the wires. Furthermore, an outer tube disposed between the control box and the throttle lever is subjected to expansion and contraction deformation during operation of the throttle lever. As a result, the outer tube interferes with operation of the bush cutting machine. Moreover, the control box has various components which increase the overall number of parts, and therefore the manufacturing cost, of the bush cutting machine.

The present invention overcomes the drawbacks of the conventional art. With reference to Figs. 1-13, a bush cutting machine 11 according to an embodiment of the present invention has an operation rod 24 having a front end and a rear end. A cutter blade 22 is mounted to the front end of the operation rod 24 for undergoing rotation. A prime mover (e.g., engine) 21 is mounted to the rear end of the operation rod 24 for rotationally driving the cutter blade 22. A throttle lever 107 is pivotally mounted with respect to the operation rod 24 for controlling an opening degree of a throttle valve of the prime mover 21 to adjust a rotational

speed of the cutter blade 22. A brake unit 65 is provided for stopping rotation of the cutter blade 22 in a breaking condition of the brake unit 65.

A main wire 56b has a first end 56e and a second end 56c. The first end 56e is connected to the throttle lever 107 so that pivotal movement of the throttle lever 107 pulls the second end 56c of the main wire 56b in a pulling direction to move the main wire 56b from a standby condition (Fig. 9) to an operative condition (Fig. 12). A throttle wire 54b has a first end and a second end 54e. The first end is connected to the throttle valve of the prime mover 21 so that when the second end 56c of the main wire 56b is pulled in the pulling direction the second end 54e of the throttle wire 54b undergoes movement in the pulling direction to move the throttle wire 54b from a standby condition (Fig. 9) in which the throttle valve is in a closed state to an operative condition (Fig. 12) to control the opening degree of the throttle valve. A brake wire 87b has a first end and a second end 87c. The first end is connected to the brake unit 65 so that when the second end 56c of the main wire 56b is pulled in the pulling direction the second end 87c of the brake wire 87b undergoes movement in the pulling direction to move the brake wire 87b from a standby condition (Fig. 9) in which the brake unit 65 is in the braking condition to an operative condition

(Fig. 12) in which the brake unit 65 is released from the braking condition to allow rotation of the cutter blade 22.

A link mechanism is actuated by operation of the throttle lever 107 to adjust the degree of opening of the throttle valve of the prime mover 21 and to release the brake unit 65 from the braking condition when each of the main wire 56b, the throttle wire 54b and the brake wire 87b is in the operative condition. The link mechanism has a generally U-shaped relay member 92 and a delay mechanism (e.g., second ends of throttle and brake wires and lug portion of relay member) actuated by operation of the throttle lever 107 such that the throttle valve opens with a time delay upon release of the brake unit from the braking condition. The U-shaped relay member 92 has a first lug portion 92a connected to the second end portion of the main wire 56b and a second lug portion 92b connected to the second end portion of the throttle wire 54b and the second end portion of the brake wire 87b. The first and second lug portions 92a, 92b form opposite and confronting leg portions of the U-shaped relay member 92. The main wire 56b, throttle wire 54b and brake wire 87b are biased to the standby condition by biasing members 97 and 114. A biasing mechanism (e.g., spring members) biases each of the main wire 56b, the throttle wire 54b, and the brake wire 87b to the corresponding standby condition.

By the foregoing simplified construction of the bush cutting machine according to the present invention, control of an opening degree of the throttle valve of the prime mover to adjust the rotational speed of the cutter blade and the application of brakes to stop rotation of the cutter blade are accomplished with high efficiency and a minimum number of parts as compared to conventional bush cutting machines. This is in contrast to conventional bush cutting machines in which an operator is required to perform respective operations of the throttle lever and the brake lever in a timed fashion during a bush cutting operation. For example, the operator of a conventional bush cutting machine must operate the throttle lever in such a manner so as to gradually increase the rotational speed of the cutter blade while gripping the brake lever to gradually release the brakes from the cutter blade, thereby requiring high-skill operation of the levers. The simplified construction of the bush cutting machine according to the present invention overcomes this problem in the conventional art.

Traversal of Prior Art Rejections

Claims 1, 5, 11, 13, 16-18, 21 (now the subject matter of claim 1), 22 (now the subject matter of claim 13), 23 and 24 (now the subject matter of claim 23) were rejected

under 35 U.S.C. §103(a) as being unpatentable over Nagashima '370 in view of Wen and Nagashima '547. Applicants respectfully traverse this rejection and submit that the combined teachings of Nagashima '370, Wen and Nagashima '547 do not disclose or suggest the subject matter recited in amended independent claims 1, 13, 23 and dependent claims 5, 11 and 16-18.

Independent Claim 1

Amended independent claim 1 is directed to a bush cutting machine and requires a cutter blade, a throttle lever pivotally mounted for controlling an opening degree of a throttle valve to adjust a rotational speed of the cutter blade, and a main wire having a first end and a second end, the first end being connected to the throttle lever so that pivotal movement of the throttle lever pulls the second end of the main wire in a pulling direction to move the main wire from a standby condition to an operative condition. Claim 1 further requires a throttle wire having a first end and a second end, the first end being connected to the throttle valve of the prime mover so that when the second end of the main wire is pulled in the pulling direction the second end of the throttle wire undergoes movement in the pulling direction to move the throttle wire from a standby condition in which the throttle valve is in a closed state to an operative

condition to control the opening degree of the throttle valve. Claim 1 further requires a brake wire having a first end and a second end, the first end being connected to the brake unit so that when the second end of the main wire is pulled in the pulling direction the second end of the brake wire undergoes movement in the pulling direction to move the brake wire from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade.

Claim 1 further requires a link mechanism actuated by operation of the throttle lever to adjust the degree of opening of the throttle valve of the prime mover and to release the brake unit from the braking condition when each of the main wire, the throttle wire and the brake wire is in the operative condition, the link mechanism having a generally U-shaped relay member and a delay mechanism actuated by operation of the throttle lever such that the throttle valve opens with a time delay upon release of the brake unit from the braking condition, the U-shaped relay member having a first lug portion connected to the second end of the main wire and a second lug portion connected to the second end of the throttle wire and the second end of the brake wire, the first and second lug portions forming opposite and confronting leg

portions of the U-shaped relay member. Claim 1 further requires biasing means for biasing each of the main wire, the throttle wire, and the brake wire to the corresponding standby condition.

Applicants respectfully submit that the combined teachings of Nagashima '370, Wen and Nagashima '547 do not disclose or suggest the subject matter recited in amended independent claim 1.

Amended independent claim 1 requires a delay mechanism actuated by operation of the throttle lever such that the throttle valve opens with a time delay upon release of the brake unit from the braking condition. As recognized by the Examiner, the combined teachings of Nagashima '370, Wen and Nagashima '547 do not disclose or suggest the delay mechanism recited in amended claim 1.

The primary reference to Nagashima '370 discloses a portable trimmer having a pair of parallel wires 18, 20 and a throttle lever for simultaneously moving the two wires. As recognized by the Examiner, the primary reference to Nagashima '370 does not disclose or suggest the structural combination of the main, throttle and brake wires and the link mechanism and corresponding functions recited in amended independent claim 1. The Examiner contends, however, that it would have been obvious to one of ordinary skill in the art at the time

the invention was made to replace parallel portions of the wires 18, 20 in Nagashima '370 with a single wire and an intermediate link mechanism, as taught by Wen and Nagashima '547, in order to reduce the total amount of wire needed. Applicants respectfully disagree with the Examiner's contention.

It is unclear how the Examiner proposes to modify Nagashima '370 in view of Wen and Nagashima '547 to arrive at the structural combination of the main, throttle and brake wires and the link mechanism recited in claim 1. In this regard, where would the link mechanism and the main wire be located in Nagashima '370's trimmer? Additionally, it is unclear how such link mechanism and main wire would be incorporated into Nagashima '370 trimmer and how such structure would interact with the take-up reel portions 70, 74 so as to render the same operable (i.e., so that the wires can be moved between standby and operative conditions).

Nevertheless, even if it were proper to modify Nagashima '370 in view of Wen and Nagashima '547 in the manner proposed by the Examiner, the proposed combination would not result in the invention recited in amended independent claim 1 as set forth below.

Amended independent claim 1 requires the following elements: a main wire having a first end and a second end, the

first end being connected to the throttle lever so that pivotal movement of the throttle lever pulls the second end of the main wire in a pulling direction to move the main wire from a standby condition to an operative condition; a throttle wire having a first end and a second end, the first end being connected to the throttle valve of the prime mover so that when the second end of the main wire is pulled in the pulling direction the throttle wire undergoes movement in the pulling direction to move the throttle wire from a standby condition to an operative condition to control the opening degree of the throttle valve; and a brake wire having a first end and a second end, the first end being connected to the brake unit so that when the second end of the main wire is pulled in the pulling direction the second end of the brake wire undergoes movement in the pulling direction to move the brake wire from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade. Stated otherwise, amended claim 1 requires that the second end of each of the main wire, throttle wire and brake wire is pulled in the same pulling direction when the main wire, throttle wire and brake wire is moved to the operative condition from the standby condition.

In contrast, the secondary reference to Wen discloses an adjusting device for a brake cable of a bicycle (Figs. 1-2). The adjusting device has a connector 10 having three leg portions to which each of three wires 20, 20, 101 are connected. When the distal end of the wire 101 is pulled in one direction (i.e., in the vertical direction of Fig. 3), the distal ends of the other two wires 20 are pulled in directions which are different from the direction in which the distal end of the wire 101 is pulled (i.e., the wires 20 are pulled in directions which intersect the direction in which the wire 101 is pulled). This is due to the configuration of the connector 10 and the manner in which the wires 20 and 101 are connected to the connector 10 which is completely different from the wires and link mechanism recited in amended claim 1.

Moreover, independent claim 1 requires a generally U-shaped relay member having a first lug portion connected to the second end of the main wire and a second lug portion connected to the second end of the throttle wire and the second end of the brake wire, the first and second lug portions forming opposite and confronting leg portions of the U-shaped relay member. The Examiner contends that the connector 10 in Wen is a U-shaped element connecting one of the wire 101 to the other two wires 20. Applicants respectfully disagree with the Examiner's contentions.

Contrary to the Examiner's contention, applicants respectfully submit that the connector 10 of Wen is not U-shaped. As shown in Fig. 2 of Wen, the connector 10 has a first portion in which holes 11 are formed for supporting brake wires 20 and a second portion spaced-apart from the first portion by a base portion. The second portion is much longer than the first portion and has an end for supporting the main wire 101. Thus Wen's connector 10 is generally in the form of an L-shape with the first portion extending upwardly from the base to an approximate distance just below a central part of the second portion. Accordingly, the connector 10 in Wen is not U-shaped, and the first and second portions of the connector 10 do not define confronting leg portions of a U-shaped relay member, as required by independent claim 1.

The secondary reference to Nagashima '547 also fails to teach the structure and function of the wires and link mechanism recited in amended claim 1. Nagashima '547 discloses a hand-lever device for a trimmer (Fig. 8). An operation stroke amplifying mechanism 40 includes a relay member 41 (i.e., a lever) having leg portions 41A-41C to which a throttle wire 17, a main wire 18 and a brake wire 68 are respectively connected. The throttle wire 17 is operatively pulled by a main lever 30 via the operation stroke amplifying

mechanism 40 and a pulley or direction changing member 45 (col. 7, lines 34-37). When an operational portion 31 of the main lever 30 is rotated in a direction toward a grip portion 11, the arms 41B, 41C of the lever 41 are pulled backwardly via the main wire 18 so as to rotate the lever 41 in a clockwise direction in the plan view of the figure shown in Fig. 8. This causes the distal end of the throttle cable 17 to be pulled out in a forward direction by the arm 41A of the lever 41 and the distal end of the wire to be pulled out in a backward direction.

Thus when the throttle wire 17, the main wire 18, and the brake wire 68 in Nagashima '547 are placed in an operative condition from a standby condition, the distal end of the throttle wire 17 is pulled in a forward direction while the distal ends of the main wire 18 and the brake wire 68 are pulled in a backward direction as viewed in Fig. 8. Stated otherwise, the distal ends of the main wire 18, throttle wire 17, and brake wire 68 are not pulled in the same pulling direction when placed in an operative condition from a standby condition, as required by amended independent claim 1.

Moreover, as recognized by the Examiner in the October 1, 2003 final Office Action, the relay member 41 of Nagashima '547 is not generally U-shaped, as required by independent claim 1. Furthermore, the leg portions 41A-41C of

the relay member 41 do not form opposite and confronting leg portions of a U-shaped relay member, as required by independent claim 1. Stated otherwise, in Nagashima '547, the relay member is generally Y-shaped, not U-shaped. Furthermore, the leg portions 41A-41C of the relay member 41 in Nagashima '547 lie on the same plane and, therefore, do not form opposite and confronting leg portions of a U-shaped relay member.

Moreover, the Examiner's motivation for modifying Nagashima '370 in view of Wen and Nagashima '547 is to reduce the total amount of wire needed in Nagashima '370's trimmer. However, the Examiner's proposed modification of Nagashima '370 would have just the opposite result of reducing the total amount of wire. More specifically, the modification of Nagashima '370 in view of Wen and Nagashima '547 proposed by the Examiner would increase, not reduce, the total amount of wire in Nagashima '370 since Wen would require replacing two parallel wires with two wires and a third wire for pulling the two wires.

Accordingly, the Examiner has not provided a proper evidentiary basis establishing the obviousness of incorporating a link mechanism and a third wire into Nagashima '370's trimmer. In this regard, the Examiner has neither cited a reference which directly establishes this obviousness,

nor set forth a line of reasoning consistent with and motivated by the cited art establishing that such modification would have been obvious. There must be some teaching, reason, suggestion, or motivation found in the prior art references to make a combination which renders an invention obvious within the meaning of 35 U.S.C §103. See, e.g., Symbol Technologies, Inc. v. Opticon, Inc., 935 F.2d 982, 989, 18 USPQ2d 1885 (Fed. Cir. 1991). One of ordinary skill in the art would not have been led to modify Nagashima '370 in view of Wen and Nagashima '547 in the manner proposed by the Examiner in the statement of rejection. The only basis for the modifications urged by the Examiner in the rejection is applicants' own disclosure, and such hindsight rejections are improper. See, for example, Diversitech Corp. v. Century Steps, Inc., 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); In re Geiger, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); Panduit Corp. v. Dennison Manufacturing Co., 227 USPQ 337, 343 (Fed. Cir. 1985); Interconnect Planning Corp. v. Feil, 227 USPQ 543, 551 (Fed. Cir. 1985).

Independent Claims 13 and 23

Amended independent claim 13 is also directed to a bush cutting machine and requires the following components:

(a) a generally U-shaped relay member mounted to undergo movement by actuation of the throttle lever to adjust the opening degree of the throttle lever and to release the

brake unit from the braking condition, the relay member having a first portion and a second portion disposed opposite the first portion, the first and second portions defining confronting leg portions of the U-shaped relay member;

(b) a first wire having a first end connected to the throttle lever and a second end connected to the first portion of the relay member so that pivotal movement of the throttle lever pulls the second end of the first wire in a pulling direction to move the first wire from a standby condition to an operative condition;

(c) a second wire having a first end connected to the throttle valve of the prime mover and a second end connected to the second portion of the relay member so that when the second end of the first wire is pulled in the pulling direction the second end of the second wire undergoes movement in the pulling direction to move the second wire from a standby condition in which the throttle valve is in a closed state to an operative condition to control the opening degree of the throttle valve;

(d) a third wire having a first end connected to the brake unit and a second end connected to the second portion of the relay member so that when the second end of the first wire is pulled in the pulling direction the second end of the third wire undergoes movement in the pulling direction to move the

third wire from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade; and

(e) a delay mechanism including the relay member and actuated by operation of the throttle lever such that the throttle valve opens with a time delay upon release of the brake unit from the braking condition.

Amended independent claim 23 is likewise directed to a bush cutting machine and requires the following components:

(a) a relay member mounted to undergo movement by actuation of the throttle lever to adjust the opening degree of the throttle lever and to release the brake unit from the braking condition;

(b) a first wire having a first end connected to the throttle lever and a second end connected to the first portion of the relay member so that pivotal movement of the throttle lever pulls the second end of the first wire in a pulling direction to move first wire from a standby condition to an operative condition;

(c) a second wire having a first end connected to the throttle valve of the prime mover and a second end connected to the second portion of the relay member so that when the second end of the first wire is pulled in the pulling

direction the second end of the second wire undergoes movement in the pulling direction to move the second wire from a standby condition in which the throttle valve is in a closed state to an operative condition to control the opening degree of the throttle valve;

(d) a third wire having a first end connected to the brake unit and a second end connected to the second portion of the relay member so that when the second end of the first wire is pulled in the pulling direction the second end of the third wire undergoes movement in the pulling direction to move the third wire from a standby condition in which the brake unit is in the braking condition to an operative condition in which the brake unit is released from the braking condition to allow rotation of the cutter blade; and

(e) a delay mechanism including the relay member and actuated by operation of the throttle lever such that the throttle valve opens with a time delay upon release of the brake unit from the braking condition.

As recognized by the Examiner, the combined teachings of Nagashima '370, Wen and Nagashima '547 do not disclose or suggest the delay mechanism recited in amended independent claims 13 and 23.

Applicants respectfully submit that the combined teachings of Nagashima '370, Wen and Nagashima '547 also do

not disclose or suggest the structural combination of the first, second and third wires and the relay member recited in amended independent claims 13 and 23 as set forth above for amended independent claim 1.

Thus the amended claims 1, 13 and 23 are not rendered obvious by the teachings of Nagashima '370, Wen and Nagashima '547 because the references do not suggest the modifications that would be needed to replicate the claimed invention. In the context of obviousness rejections based upon the purported obviousness of effecting a required modification, the Federal Circuit has held that "[t]he mere fact that the prior art may be modified in [a given] manner ... does not make the modification obvious unless the prior art suggested the desirability of the modification". In re Fritch, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). There is nothing in Wen and Nagashima '547 that would have suggested modifying the structure of the trimmer of Nagashima '370 to achieve the bush cutting machine discussed above and recited by amended independent claims 1, 13 and 23.

Claims 5, 11 and 16-18 depend on and contain all of the limitations of amended independent claims 1 and 13, respectively, and therefore, distinguish from the reference at least in the same manner as claims 1 and 13.

In view of the foregoing, applicants respectfully request that the rejection of claims 1, 5, 11, 13, 16-18, 21 (now the subject matter of claim 1), 22 (now the subject matter of claim 13), 23 and 24 (now the subject matter of claim 23) under 35 U.S.C. §103(a) as being unpatentable over Nagashima '370 in view of Wen and Nagashima '547 be withdrawn.

Claims 1, 5, 6 (now the subject matter of claim 1), 11, 12, 13, 16-18, 19 (now the subject matter of claim 13), 20, 21 (now the subject matter of claim 1), 22 (now the subject matter of claim 13), 23 and 24 (now the subject matter of claim 23) were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagashima '370 in view of Wen and Nagashima '547 and further in view of Tabata. Applicants respectfully traverse this rejection and submit that the combined teachings of Nagashima '370, Wen, Nagashima '547 and Tabata do not disclose or suggest the subject matter recited in amended independent claims 1, 13, 23 and dependent claims 5, 11, 12, 16-18 and 20.

Nagashima '370 in view of Wen and Nagashima '547 does not disclose or suggest the subject matter recited in amended independent claims 1, 13 and 23 as set forth above for the rejection of claims 1, 5, 11, 13, 16-18 and 21-24 under 35 U.S.C. §103(a).

The secondary reference to Tabata is directed to a control device for an automatic vehicle and has been cited by the Examiner for its teaching of providing a space between the end of a throttle cable and a member that moves it. However, since Tabata does not disclose or suggest the specific combination of the wires and the structure of the relay member as set forth above for amended independent claims 1, 13 and 23, the reference does not cure the deficiencies of Nagashima '370 as modified by Wen and Nagashima '547. Accordingly, one of ordinary skill in the art would not have been led to modify the references to attain the claimed subject matter.

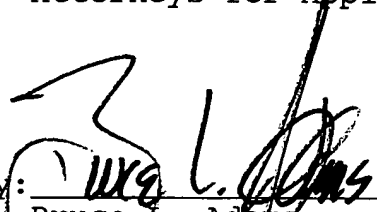
Claims 5, 11, 12 and 16-18, 20 depend on and contain all of the limitations of amended independent claims 1 and 13, respectively, and therefore, distinguish from the references at least in the same manner as claims 1 and 13.

In view of the foregoing, applicants respectfully request that the rejection of claims 1, 5, 6 (now the subject matter of claim 1), 11, 12, 13, 16-18, 19 (now the subject matter of claim 13), 20, 21 (now the subject matter of claim 1), 22 (now the subject matter of claim 13), 23 and 24 (now the subject matter of claim 23) under 35 U.S.C. §103(a) as being unpatentable over Nagashima '370 in view of Wen and Nagashima '547 and further in view of Tabata be withdrawn.

In view of the foregoing amendments and discussion,
the application is now believed to be in condition for
allowance. Accordingly, favorable reconsideration and
allowance of the claims are most respectfully requested.

Respectfully submitted,

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